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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,312	10/14/2003	Blaine J. Thurgood	2269-5520.1US (02-0676.01)	5043
24247	7590	11/16/2006	EXAMINER	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			CHANG, RICK KILTAE	
			ART UNIT	PAPER NUMBER
			3726	
DATE MAILED: 11/16/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/685,312	Applicant(s) THURGOOD, BLAINE J.	
	Examiner Rick K. Chang	Art Unit 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>of record</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/31/06 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3 and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 11: "the interconnect slot" lacks positive antecedent basis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

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do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1 and 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (US 6,975,035).

Lee discloses a method of forming an interposer substrate 110 by forming a first elongated interconnect slot 120, 130; at least a second elongated interconnect slot 120, 130 (Figs. 1-3); a longitudinal axis of the first elongated interconnect slot and at least a second elongated interconnect slot positioned approx. collinear to a longitudinal centerline of the substrate (see Fig. 1), the first elongated interconnect slot separated by at least one transversely extending crosspiece from at least a second elongated interconnect slot (segments 132 extending between separate individual recesses, col. 9, lines 60-65, see also Figs. 2 and 13), the first elongated interconnect slot and at least a second elongated interconnect slot being sized and configured for respective alignment with a first plurality and at least a second plurality of bond pads (see for example Fig. 6A showing bond pads 158 with bumps 156) on a single semiconductor die (150) when the die is placed on the substantially planar substrate (110), the bond pads being accessible through the interconnect slot, see Fig. 6B. Lee discloses additional embodiments that meet at least claims 1 and 15. Fig. 13 shows a plurality of slots (620, 630) and Fig. 25 shows slots 320.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 6,975,035) in view of Weber (US 5,597,643).

Lee fails to disclose milling.

Weber discloses milling.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lee by milling, as taught by Weber, for the purpose of removing excess material with a minimum of burrs.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 6,975,035)/Weber (US 5,597,643) as applied to claims 1-2 above, and further in view of Parsons (US 3,635,124).

Lee /Weber fail to disclose filled side edges on the crosspiece.

Parsons discloses filleted side edges on the crosspiece (39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lee /Weber by providing filleted side edges on the crosspiece, as taught by Parsons, for the purpose of forming smooth edges to reduce weight and material for wire bonding.

9. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Lee (US 6,975,035).

Lee fails to disclose forming the elongated interconnect slot to a length of about 67 to 80% or more of a length of the substrate. It would have been obvious to one having ordinary

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skill in the art at the time the invention was made to form the elongated interconnect slot to a length of about 70 to 80% of a length of the substrate, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the elongated interconnect slot to a length of about 67 to 80% or more of a length of the substrate, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify by variation of size, shape, number of slots and/or configuration of the CB per design parameters. Therefore, collinear issues are addressed by changing the shape of the slots.

Response to Arguments

10. Applicant's arguments with respect to claims as noted above have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Please provide reference numerals (either in parentheses next to the claimed limitation or in a table format with one column listing the claimed limitation and another column listing corresponding reference numerals in the remark section of the response to the Office Action) to all the claimed limitations as well as support in the disclosure for better clarity (optional). Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any

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amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (571) 272-4564. The examiner can normally be reached on 5:30 AM to 1:30 PM.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, consisting of stylized, overlapping loops and curves, positioned above a horizontal line.

**RICHARD CHANG
PRIMARY EXAMINER**

RC
November 6, 2006